

Effluent Quality Assessment

City of Sarasota AWWTP

Sarasota County

NPDES #FL0040771

Sampled August 17, 2009

December 2009

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

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City of Sarasota AWWTP, 1850 -12th Street, Sarasota, Sarasota County, Florida, 34236. NPDES #FL0040771. Effluent samples for bioassay, chemical and microbiological analyses for this facility were collected on August 17, 2009.

Introduction

City of Sarasota AWWTP is a 10.2 million gallon per day average annual daily flow wastewater treatment plant which utilizes a modified Bardenpho process to treat domestic wastewater. The facility has no Administrative Orders, Consent Orders or Mixing Zones. There have been no reported permit violations within the past year. (See Appendix F for detailed facility information provided by Jason Cohen of FDEP Southwest District.)

Methods

Samples for bioassay, algal growth potential (AGP), microbiological and chemical analyses were collected from the EFD-01 NPDES sampling point for Outfall D-001 on August 17, by Peter Wenner and Chris Anastasiou, (FDEP Southwest District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

See Appendix A for the completed chain of custody forms.

The freshwater acute definitive toxicity tests and the algal growth potential test were performed following internal DEP SOPs TA07_05, TA07_09, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

The AGP sample was salinity adjusted to meet the minimum salinity requirement of the test species.

Results and Discussion

Toxicity Test Results

Tests performed August 18 - 22, 2009.

Ceriodaphnia dubia 96-hour acute definitive bioassay –	LC_{50} > 100%, 0% mortality in 100% sample at 96 hours
Cyprinella leedsi 96-hour acute definitive bioassay –	LC_{50} > 100%, 0% mortality in 100% sample at 96 hours

The bioassay samples were not acutely toxic to the bioassay test organisms.

See Appendix B for bioassay bench sheets. See Appendix C for results of the last 20 standard reference toxicant (SRT) tests and the bench sheets and statistical analyses of the SRT tests that correspond to these facility tests. See Appendix D for test organism receipts. See Appendix G for bioassay instruments.

Algal Growth Potential

The Algal Growth Potential (AGP) of the effluent collected on August 17, 2009, was 3.0 U (U - material analyzed for but not detected; value reported is the method detection limit) mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz found that AGP values above 10.0 mg dry weight/L represent a “problem” threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP, with Ron Raschke USEPA Region 4 1987). The ratio of inorganic nitrogen to ortho-phosphate (47.2:1) as well as the ratio of total nitrogen to total phosphorus (35.5:1) in the effluent suggests that the effluent is phosphorus-limited. To determine actual nutrient limitation, a limiting-nutrient algal growth potential test should be performed (Maloney et al. 1978).

Due to the apparent salinity (1.08 ppth) of the sample and miscommunication within the laboratory, an AGP test with the freshwater species, *Pseudokirchneriella subcapitata*, was not performed.

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the bioassay laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was estimated to be 0.029 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg N/L.

Bromodichloromethane, copper, dibromochloromethane and nickel were detected in the effluent at levels that comply with Class III marine water quality criteria (62-302.530, F.A.C.). Aluminum, antimony, arsenic, chromium, iron, and zinc were detected between the laboratory method detection limits (MDL) and the laboratory practical quantification limits (PQL). Fecal coliforms were not detected in the effluent.

See Table 2 for results of analytes detected in the effluent, and corresponding limits. See Appendix E for a complete list of chemical analyses performed.

Conclusion

The effluent samples collected from the EFD-01 NPDES sampling point for Outfall D-001 for this facility on August 17, 2009, were not acutely toxic to either test species. The effluent AGP result was less than the "problem" threshold for marine receiving waters. Effluent water quality samples did not violate water quality criteria or permit limits.

Literature Cited

Maloney, T. E., W. E. Miller, and D. T. Specht. 1974. The Marine Algal Assay Procedure: Bottle Test. National Environmental Research Center Office of Research and Development. U. S. EPA, Corvallis, Oregon. 43 p.

Table 1. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus for samples collected from the City of Sarasota AWWTP facility on August 17, 2009.

City of Sarasota AWWTP				
Location	AGP (measured)		Inorganic N:P ratio	Total N:P ratio
Effluent*	3.0	U	47.2	35.5

* - sample salinity adjusted to 7ppth

U - Material analyzed for but not detected; value reported is the method detection limit

Table 2. Effluent limits, Class III Criteria for predominantly marine waters and chemical and microbiological data for samples collected from the City of Sarasota AWWTP facility on August 17, 2009.

City of Sarasota AWWTP NPDES# FL0040771	Class III Criteria	Effluent Limits	Effluent	Effluent Composite Sample
Organic Constituents (µg/L)				
Bromodichloromethane	-	≤ 22 a	12	-
Dibromochloromethane	-	≤ 34 a	26	-
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	-	140 I
Antimony	≤ 4,300	-	-	0.4 I
Arsenic	≤ 50	-	-	0.77 I
Cadmium	≤ 8.8	-	-	0.03 U
Calcium (mg/L)	-	-	-	57
Chromium-III	-	-	-	0.45 I
Copper	≤ 3.7	≤ 3.7 sp	-	1.43
Iron	≤ 300	-	-	37 I
Lead	≤ 8.5	-	-	0.2 U
Magnesium (mg/L)	-	-	-	31.8
Nickel	≤ 8.3	≤ 8.3 sp	-	2.09
Selenium	≤ 71	-	-	0.2 U
Silver	≤ 2.3	≤ 2.3 sp	-	0.025 U
Zinc	≤ 86	-	-	16 I
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.062 J	-
Total Phosphorus	-	≤ 2.0 sp	-	0.1 A
Total Ammonia	-	-	-	0.029 J
Un-ionized Ammonia	-	-	-	≤ 0.02 c
Nitrate and Nitrite	-	-	-	2.9 F
Total Kjeldahl Nitrogen	-	-	-	0.65
Organic Nitrogen	-	-	-	0.621 c
Total Nitrogen	-	≤ 6.0 sp	-	3.55 c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 6.0 s	7.3	-
pH (SU)	6.5 - 8.5	6.5 - 8.5 s	8.0	-
Conductivity (µmhos/cm)	-	-	2132	-
Temperature (°C)	-	-	30.7	-
Salinity (Parts per Thousand)	-	-	1.08	-
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	≤ 0.02	-
Chlorophyll *a* (µg/L) - Corrected	-	-	0.88 I	-
Phaeophytin (µg/L)	-	-	0.4 U	-
Total Suspended Solids (mg/L)	-	≤ 10.0 sp	4 U	4 U
CBOD, 5 day (mg/L), N - inhibited	-	2 p	-	12 JVQ
Flow (MGD)	-	≤ 10.2	1.52 a	-
Hardness (mg $CaCO_3$)	-	-	-	273.28 c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms @	≤ 400s #	≤ 25 s	1 U	-

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
c - Value is calculated
p - Limit based on flow-proportioned composite sample
s - Single sample
A - Value reported is the mean of two or more determinations
F - Analyte was detected in both sample and field blank
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
V - Analyte was detected in both sample and method blank
@ - Fecal coliform analysis performed by AEL lab
# - If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2009-08-24-38
City of Sarasota WWTP

Customer: SW-DIST

Project ID: FYI3

PMAS: 1143

Requester: Jennifer Paris

Collected By: P. WENNER, C ANASTASIOU

Sampling Agency: FDEP SWD

Field Report Prepared By:

Send Final Report To Joe Squitieri

SAMPLES LOAD (FW)

Lab ID *	Location: EFD-01	37935	☐ Comp ☑ Grab	Collection (begin) Date 8/17/09 Time 1030 (TOX) (Eastern) Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Field ID: 37935			Tot Res Chlorine (mg/L): <0.02	Diss Oxygen (mg/L): 7.30	Storet Station Number	A
	Matrix (Include type e.g. Salt, Fresh, etc): WWTP EFFLUENT (FR)	Temp (C): 30.71	pH: 7.99	Sample Depth: N/A ☐ m ☐ ft	1.08 / 2132 ☑ Salinity (PPTh) ☑ Sp Conductance (umho/cm)	NPDES Number	
	Latitude: 27 ° 20 ' 54.5 "	Longitude: 82 ° 32 ' 03.8 "		Comments: Sample drawn from a tap located @ EFD-01		
Lab ID *	Location: EFD-01	37936	☑ Comp ☐ Grab	Collection (begin) Date 8/16/09 Time 0730 (Eastern) Central	Collection (end) Date 8/17/09 Time 0730 (Eastern) Central	Bottle Group(s)**
	Field ID: 37396			Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number	A, C
	Matrix (Include type e.g. Salt, Fresh, etc): WWTP EFFLUENT (FRESH)	Temp (C):	pH:	Sample Depth: ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude: 27 ° 20 ' 54.5 "	Longitude: 82 ° 32 ' 03.8 "		Comments: Sampled collected on Sunday 8/16/09 and kept on ice until 8/17/09		
Lab ID *	Location: BLANKS	37937	☐ Comp ☑ Grab	Collection (begin) Date 8/17/09 Time 1055 (Eastern) Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Field ID: DI WATER			Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number	B
	Matrix (Include type e.g. Salt, Fresh, etc): DI WATER	Temp (C):	pH:	Sample Depth: ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude: o ' "	Longitude: o ' "		Comments:		
Lab ID *	Location: (FW) ~~EQUIPMENT~~ FIELD BLANKS	37938	☑ Comp ☐ Grab	Collection (begin) Date 8/17/09 Time 1055 (Eastern) Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Field ID: DI WATER			Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number	B
	Matrix (Include type e.g. Salt, Fresh, etc): DI WATER	Temp (C):	pH:	Sample Depth: ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude: o ' "	Longitude: o ' "		Comments:		

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	8/17/09 1600	FEDEX	ABC	8/18/09 09:15	4 bsy B Alexander		10:23	

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

FDEP Biology Laboratory - Acute Definitive Bioassay Bench Sheets

Facility: City of Sarasota AWWTP

Address: 1850 12th Street

City: Sarasota County: Sarasota

Contact/District: Jason Cohen / South West

NPDES Permit #: FL 0040771

LIMS Job #: TIH-2009.08.18-46 LIMS Sample #: 1209475

Lims Data Entry: 8-27-09 mt Data Entry Verification: 8.27.09 BA

Sample Collection: Date: 8.17.09 Time: 10:30

Hold Time Start: Date: 8.17.09 Time: 10:30

Comments:

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks.

Test Type: (Definitive)
Static / (Static Renewal) / Flow-through
Test Duration: 48 (96) Hours.
Light Intensity : 50 - 100 ft. candles.
Photoperiod : 16 hours light 8 hours dark.

Test 1 validation: **Test 1:** SOP TA 07_01
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation: **Test 2:** SOP TA 07_02
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Initial sample handling:

PH adjustment : yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____

Aeration : yes (no) Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~____bubbles/min

Salinity adjusted (Test 1): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Salinity adjusted (Test 2): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C < collected °C) Yes No

Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 24.7 max. 27.0 mean 25.9
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 25.4 max. 25.7 mean 25.6

Investigators' Signatures

James Daniels

Jackie Jurn

Marshall Faircloth

Bruce Abel

Dietta C. Wolfe
REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ (Well Water)	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A		<0.02	HACH	P.Wenner	MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03				<0.03	HACH	BA	JD
Alkalinity (mg/L as $CaCO_3$):	77	154				168	HACH	BA	JD
Hardness (mg/L as $CaCO_3$):	85	140				—	HACH	BA	JD
Total Ammonia (mg/L as N):	<0.017	<0.017				<0.017	DENVER	BA	JD
Salinity (ppth):	—	—				—	YSI / Mettler	JD	JD

* Michele Pegram V 1.4 9/12/05

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1209475 Test #: 1/2 Test Started: Date 8.18.09 Time: 1230
Organism: C. dubia SOP #: TA 07_01 Test Ended: Date 8-22-09 Time: 0930
Organism Batch: 29-09 Diluent/ Batch: DMW / 8.15.09
Organism Age: <24hrs Food: YCT P. subcapitata Artemia
Chamber Size: 30 mL Batch: 7.15.09 2.13.09
Test Volume: 20 mL Feeding: Prior to test Prior to renewal Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	A	5	~~10~~ 5	~~5~~ 5	5	5	5
	B	B	5	~~10~~ 5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
6.25%	A	A	5	~~10~~ 5	5	5	5	5
	B	B	5	~~10~~ 5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
12.5%	A	A	5	~~10~~ 5	5	5	5	5
	B	B	5	~~10~~ 5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
25%	A	A	5	~~10~~ 5	5	5	5	5
	B	B	5	~~10~~ 5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
50%	A	A	5	~~10~~ 5	5	5	5	5
	B	B	5	~~10~~ 5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
100%	A	A	5	~~10~~ 5	5	5	5	5
	B	B	5	~~10~~ 5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
Organisms loaded by: JB		Checked by:	JS	JD	BA	BA	BA	MF
Loading Verified by: BA								

m = missing d = dead BR = before renewal AR = after renewal

Comments:
@ 24hr mortality Ctrl - 100% transcription error - JD 8.19.09

Test Results:
% mortality in 100% sample: 0 %
LC_{50}: >100% If Calculated: 95% CI_____ Method:_____

Screening Tests:
Report LC50 as >100%, =100%, or <100%.
Substitute highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

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Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1209475 Test #: 2/2 Test Started: Date 8.18.09 Time: 13.25
Organism: C. tenuis SOP #: TA 07_ 02 Test Ended: Date 8.22.09 Time: 1000
Organism Batch: 8.18.09 Diluent/ Batch: well / 8.18.09
Organism Age: 11days Food: YCT P. subcapitata (Artemia) 38438-lot
Chamber Size: 30 mL Batch: 114-09 / 115-09 - Batch
Test Volume: 20 mL Feeding (Prior to test) (Prior to renewal) Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	B1	10	10	10	10	10	10
	B	B2	10	10	10	10	10	10
6.25%	A	B3	10	10	10	10	10	10
	B	B4	10	~~10~~ 9 10	9	9	9	9
12.5%	A	B5	10	10	10	10	10	10
	B	B6	10	10	10	10	10	10
25%	A	B7	10	10	10	10	10	10
	B	B8	10	10	10	10	10	10
50%	A	B9	10	10	10	10	10	10
	B	~~B10~~ B10	10	10	10	10	10	10
100%	A	B11	10	10	10	10	10	10
	B	B12	10	10	10	10	10	10
Organisms loaded by: BA		Checked by:	JB	JD	JD	JD	JD	MF
Loading Verified by: AJ								

m = missing d = dead BR = before renewal AR = after renewal

Comments:

Test Results:
% mortality in 100% sample: 0%
LC_{50}: >100% If Calculated: 95% CI_____ Method:_____

Screening Tests:
Report LC50 as >100%, =100%, or <100%.
Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

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FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1209475 Test #: 1 of 2

TEST SOP #: TA07_ 01 Test Species: (Ceriodaphnia dubia) Cyprinella leedsi Pimephales promelas Americamysis bahia Menidia beryllina Other:_____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A	M		A
pH (S.U.)	8.0		8.0	7.8		8.2
Temperature °C	23.4	~~23.8~~ gs	24.0	24.2		24.2
Dissolved Oxygen mg/L	7.6		7.6	7.6		7.7
Conductivity (µmhos) mmhos	173.7	~~304~~ gs	185	173		188
(initials) Measured by:	gs		BA	BA		MF
(initials) Recorded by:	gs		BA	BA		MF

Comments:

Concentration 6.25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A	M		A
pH (S.U.)	8.0		8.0	7.9		8.1
Temperature °C	23.8		24.0	24.4		24.3
Dissolved Oxygen mg/L	7.6		7.6	7.6		7.6
Conductivity (µmhos) mmhos	304		361	285		326
(initials) Measured by:	gs		BA	BA		MF
(initials) Recorded by:	gs		BA	BA		MF

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A	M		A
pH (S.U.)	8.1		8.1	7.9		8.1
Temperature °C	23.8	~~23.8~~ gs	24.0	24.5		24.2
Dissolved Oxygen mg/L	7.5		7.6	7.5		7.8
Conductivity (µmhos) mmhos	428	~~428~~ gs	508	433		509
(initials) Measured by:	gs		BA	BA		MF
(initials) Recorded by:	gs		BA	BA		MF

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A	M		A
pH (S.U.)	8.1		8.1	7.9		8.1
Temperature °C	24.1		24.0	24.4		23.9
Dissolved Oxygen mg/L	7.5		7.5	7.4		7.7
Conductivity (µmhos) mmhos	681		795	682		779
(initials) Measured by:	gs		BA	BA		MF
(initials) Recorded by:	gs		BA	BA		MF

Comments:

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1209475 Test #: 1 of 2

TEST SOP #: TA07_01 Test Species: (Ceriodaphnia dubia) Cyprinella leedsi Pimephales promelas Americamysis bahia Menidia beryllina Other:_____

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A	M		A
pH (S.U.)	8.1		8.3	7.9		8.2
Temperature °C	24.1		24.0	24.5		24.2
Dissolved Oxygen mg/L	7.8		7.5	7.4		7.7
Conductivity (µmhos) mmhos	1147		1317	1174		1323
(initials) Measured by:	gh		BA	BA		MF
(initials) Recorded by:	gh		BA	BA		MF

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A	M		A
pH (S.U.)	8.1		8.4	8.0		8.3
Temperature °C	24.0		24.0	24.5		24.1
Dissolved Oxygen mg/L	8.1		7.6	7.4		7.6
Conductivity (µmhos) mmhos	2050		2270	2090		2190
(initials) Measured by:	gh		BA	BA		MF
(initials) Recorded by:	gh		BA	BA		MF

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

V 2.0 2/24/04

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample #: 1209475 Test #: 2 of 2

TEST SOP #: TA07_02 Test Species: *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.6	8.1	8.1	8.1	8.0	8.2
Temperature °C	25.1	24.8	24.0	24.7	24.1	24.3
Dissolved Oxygen mg/L	7.3	7.1	7.5	7.5	7.4	7.6
Conductivity (µmhos) mmhos	274	282	287	276	283	289
(initials) Measured by:	BA	JS	JS	JD	JS	MF
(initials) Recorded by:	BA	JS	JS	AB	JS	MC

Comments:

Concentration 6.25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.7	8.1	8.1	8.2	8.1	8.2
Temperature °C	25.3	24.6	24.0	24.7	24.0	24.2
Dissolved Oxygen mg/L	7.3	7.0	7.0	7.5	7.2	7.2
Conductivity (µmhos) mmhos	393	403	408	317	369	411
(initials) Measured by:	BA	JS	JS	JS	JS	MC
(initials) Recorded by:	BA	JS	JS	AB	JS	MC

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.7	8.1	8.1	8.2	8.1	8.2
Temperature °C	25.5	24.5	24.0	24.7	24.1	24.2
Dissolved Oxygen mg/L	7.3	7.0	7.0	7.4	7.1	7.4
Conductivity (µmhos) mmhos	513	510	532	517	529	539
(initials) Measured by:	BA	JS	JS	JS	JS	MF
(initials) Recorded by:	BA	JS	JS	AB	JS	MF

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.7	8.1	8.1	8.2	8.0	8.2
Temperature °C	25.8	24.4	24.7	24.8	24.0	24.2
Dissolved Oxygen mg/L	7.2	7.0	7.1	7.6	7.2	7.0
Conductivity (µmhos) mmhos	752	748	766	749	764	776
(initials) Measured by:	BA	JS	JS	JS	JD	MF
(initials) Recorded by:	BA	JS	JS	AB	JS	MF

Comments:

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V 2.0 2/24/04

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1209475 **Test #:** 2 of 2

TEST SOP #: TA07_02 **Test Species:** *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.7	8.1	8.1	8.1	8.0	8.1
Temperature °C	26.0	24.4	24.9	24.9	24.0	24.2
Dissolved Oxygen mg/L	7.2	7.0	7.1	7.6	6.7	7.0
Conductivity (µmhos) mmhos	1223	1177	1253	1197	1212	1239
(initials) Measured by:	BA	JD	JD	JD	JD	MF
(initials) Recorded by:	BA	JD	JD	gs	JD	MF

Comments: spacewand MF

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.8	8.1	8.1	8.1	8.0	8.1
Temperature °C	26.0	24.4	24.8	25.3	24.1	24.3
Dissolved Oxygen mg/L	8.3	7.0	7.0	7.6	6.7	7.0
Conductivity (µmhos) mmhos	2090	2070	2110	2110	2150	2200
(initials) Measured by:	BA	JD	JD	JD	JD	MF
(initials) Recorded by:	BA	JD	JD	gs	JD	MF

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

V 2.0 2/24/04

Appendix C. SRT Bench Sheets and Statistical Analysis

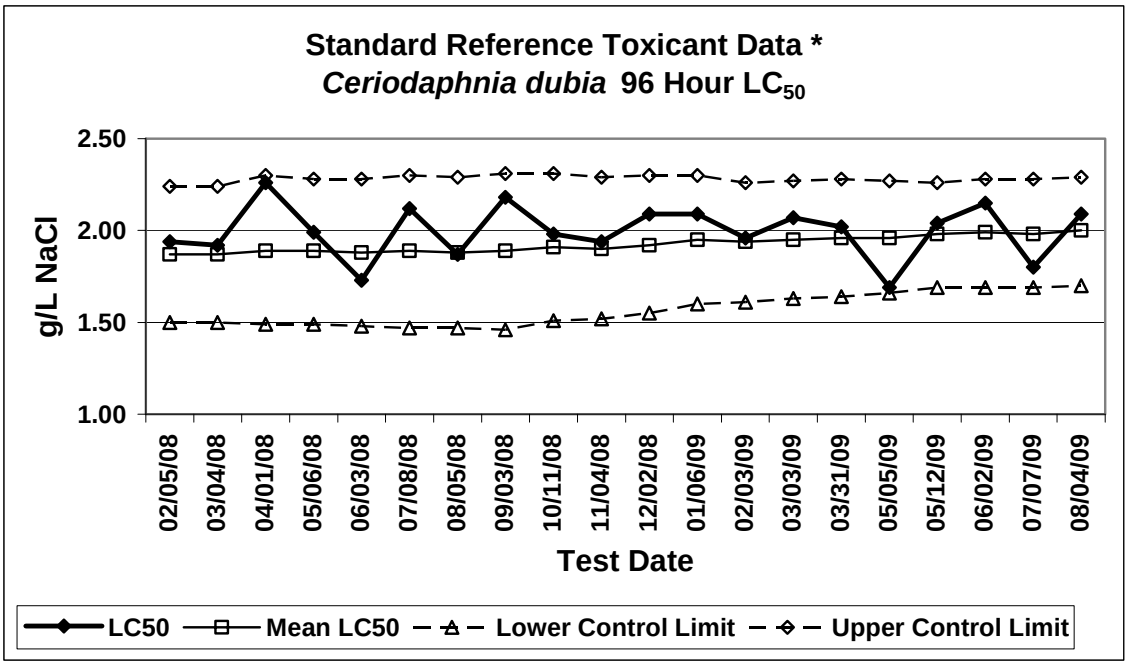
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
02/05/08	1.94	1.87	0.18	1.50	2.24
03/04/08	1.92	1.87	0.18	1.50	2.24
04/01/08	2.26	1.89	0.20	1.49	2.30
05/06/08	1.99	1.89	0.20	1.49	2.28
06/03/08	1.73	1.88	0.20	1.48	2.28
07/08/08	2.12	1.89	0.21	1.47	2.30
08/05/08	1.87	1.88	0.20	1.47	2.29
09/03/08	2.18	1.89	0.21	1.46	2.31
10/11/08	1.98	1.91	0.20	1.51	2.31
11/04/08	1.94	1.90	0.19	1.52	2.29
12/02/08	2.09	1.92	0.19	1.55	2.30
01/06/09	2.09	1.95	0.17	1.60	2.30
02/03/09	1.96	1.94	0.16	1.61	2.26
03/03/09	2.07	1.95	0.16	1.63	2.27
03/31/09	2.02	1.96	0.16	1.64	2.28
05/05/09	1.69	1.96	0.15	1.66	2.27
05/12/09	2.04	1.98	0.14	1.69	2.26
06/02/09	2.15	1.99	0.15	1.69	2.28
07/07/09	1.80	1.98	0.15	1.69	2.28
08/04/09	2.09	2.00	0.15	1.70	2.29

Lower Control Limit = mean - 2 * Std Dev
Upper Control Limit = mean + 2 * Std Dev

CV = 7.35
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

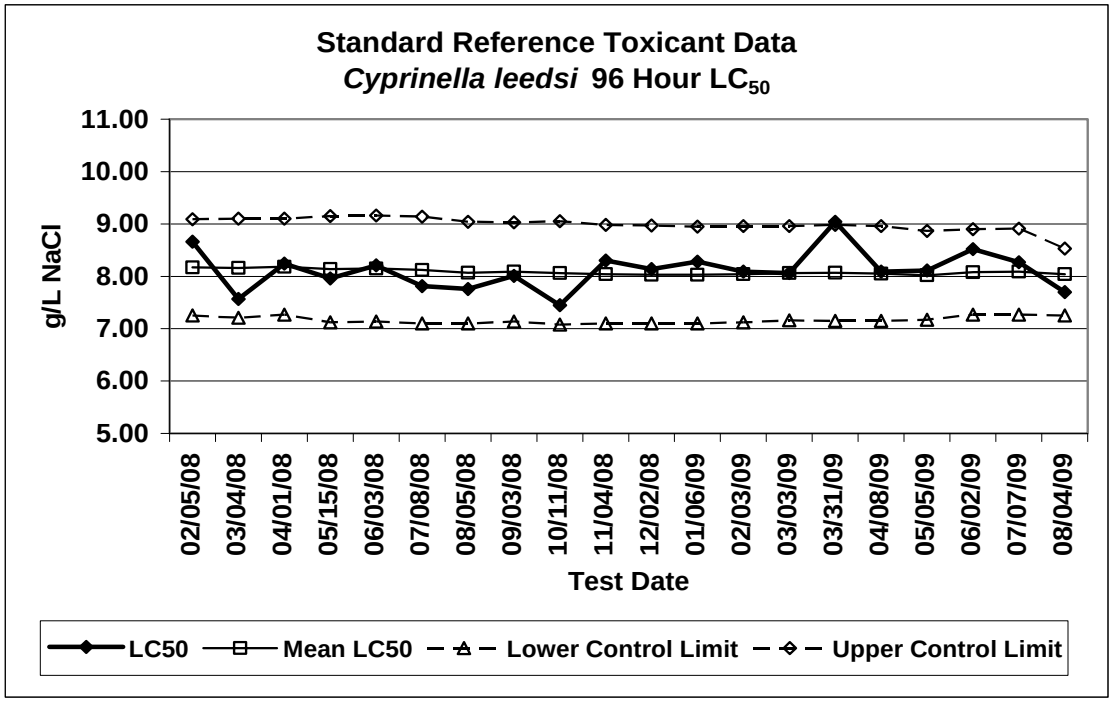
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
02/05/08	8.66	8.17	0.47	7.25	9.09
03/04/08	7.57	8.16	0.47	7.21	9.10
04/01/08	8.24	8.18	0.46	7.27	9.10
05/15/08	7.96	8.14	0.51	7.12	9.15
06/03/08	8.21	8.15	0.51	7.14	9.16
07/08/08	7.81	8.12	0.51	7.10	9.14
08/05/08	7.76	8.07	0.48	7.10	9.04
09/03/08	8.01	8.09	0.47	7.14	9.03
10/11/08	7.45	8.06	0.49	7.08	9.05
11/04/08	8.30	8.04	0.47	7.10	8.98
12/02/08	8.14	8.03	0.47	7.10	8.97
01/06/09	8.28	8.03	0.46	7.10	8.95
02/03/09	8.09	8.04	0.46	7.12	8.96
03/03/09	8.06	8.06	0.45	7.16	8.96
03/31/09	9.04	8.07	0.46	7.15	8.98
04/08/09	8.09	8.05	0.45	7.15	8.96
05/05/09	8.11	8.02	0.43	7.17	8.87
06/02/09	8.52	8.08	0.41	7.27	8.90
07/07/09	8.27	8.09	0.41	7.27	8.91
08/04/09	7.70	8.04	0.40	7.25	8.53

Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 4.92
EPA reference 75th quartile CV = 19%



Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet

Method from EPA-821-R-02-012 except *H. azteca*

Test Organism: (check one)
☐ *Americamysis bahia* Method 2007.0 TA07.03 ☐ *Menidia Beryllina* Method 2006.0 TA07.04 ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
☑ *Ceriodaphnia dubia* Method 2002.0 TA07.01 ☐ *Cyprinella leedsi* Method 2000.0 TA07.02 ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Type: ☐ non-renewal ☑ renewal

Test Page 1 of 2

Diluent/ Batch #: DMW 1.28.09
Toxicant/ Batch#: NaCl 1.8.309

Organism Batch: 27.09
Age: < 24hr

Test Beginning: Date: 8.4.09 Time: 11:45
Test Ending: Date: 8.8.09 Time: 11:15

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	JD
Alkalinity (mg/L as $CaCO_3$):	90	TA06_08	BA
Hardness (mg.L as $CaCO_3$):	91	TA06_09	BA
Total Ammonia (mg/L as N):	<0.017	TA06_17	BA 8.8.09 BA
Conductivity: µmhos (mmhos)	0.173	TA06_25	JD
Salinity (ppth):	–	TA06_25	JD

Food:	Batch
☑ YCT	1-22-09
☑ *P. subcapitata*	7.23.09
☐ Artemia Lot #	

Artemia Batch:
0 hr:
24 hr:
48 hr:
72 hr:

Chamber size: 30 mL
Test volume: 20 mL per replicate

Concentrations prepared by: BA
Temperature Range °C:(if used)
Test Incubated In: Incubator # 2 Waterbath # ____ Incubator # 2 min 26.0 max 26.4 mean 26.2
Light Intensity: 50-100 Ft. candles Waterbath # ___ min ___ max ___ mean ___
Photoperiod: 16 hours Light / 8 hours dark Room B246 min 25.2 max 25.7 mean 25.5

Feeding: √as needed

☑ Before test
☐ 0 hr
☐ 24 hr
☑ 48 hr
☐ 72 hr

all species 2 hrs prior to test
mysids daily
all species except *H. azteca* 2 hr prior to renewal
H. azteca 0 hr and 48 hr

Concentration µg/L mg/L @	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
1.5	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
2.0	A	A	5	5	4 1D	4	3 1D	2 1D
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	4 1D	3 1D
	D	D	5	5	4 1D	4	4	4
2.5	A	A	5	5	1 4D	1	0 1D	–
	B	B	5	4 1D	2 2D	2	0 2D	–
	C	C	5	4 1D	4	4	2 2D	1 1D
	D	D	5	4 1D	3 1D	3	1 2D	0 1D
3.0	A	A	5	0 5D	–	–		
	B	B	5	0 5D	–	–		
	C	C	5	2 3D	0 2D	–		
	D	D	5	2 3D	0 2D	–		
4.0	A	A	5	0 5D	–	–		
	B	B	5	0 5D	–	–		
	C	C	5	0 5D	–	–		
	D	D	5	0 5D	–	–		
Organisms loaded by: BA		Checked by:	BA	BA	BA	BA	BA	JD

Loading Verified by: JD AR = after renewal
m = missing d = dead BR = before renewal hr = hour

H. azteca		
0 hr	Alk	Hrd
Well		
100%		
96 hr	Alk	Hrd
Well		
100%		

Comments:

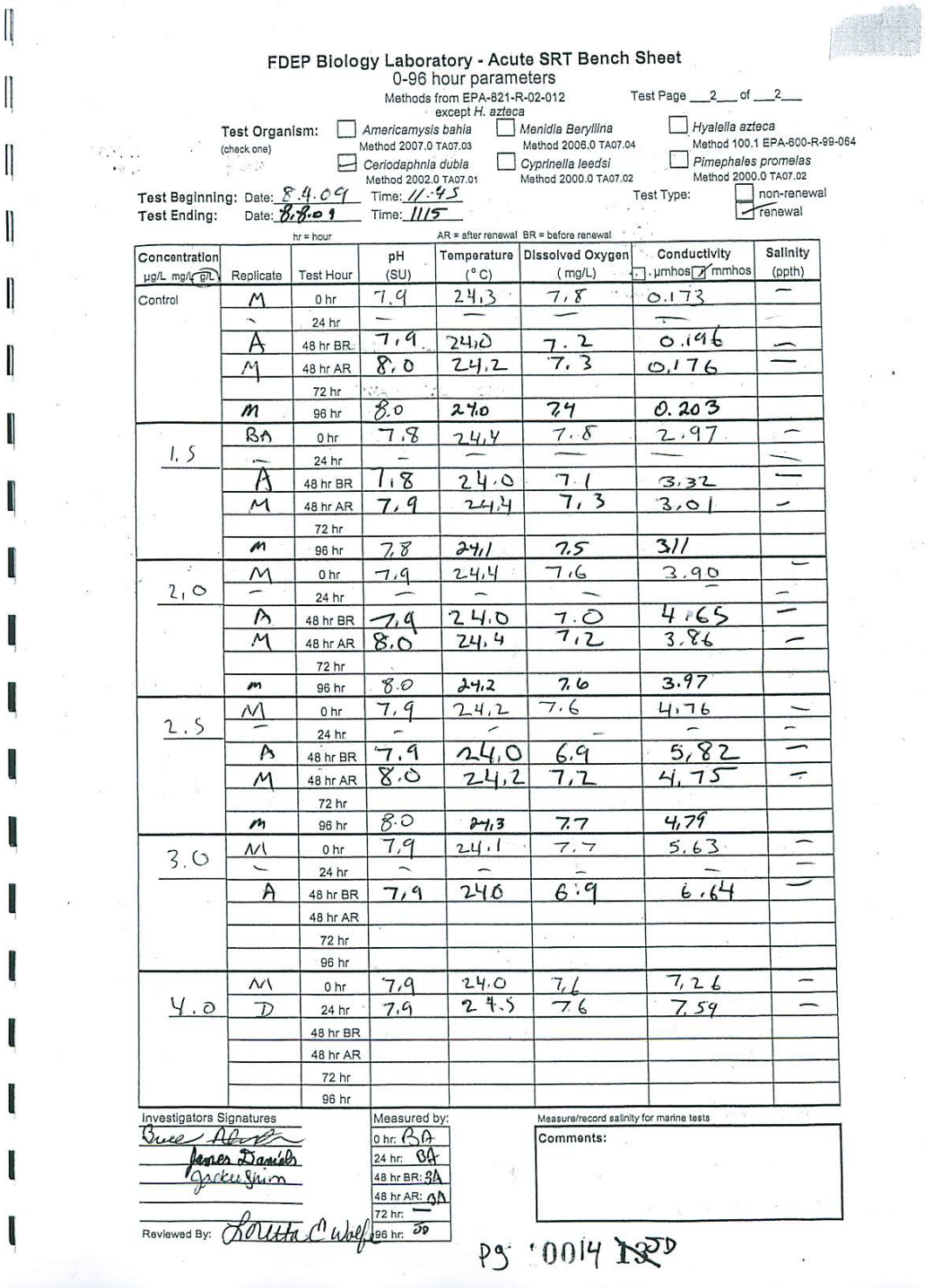
Investigators' Signatures
Reviewer: Loretta C. Wolfe

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: 2.41	2.28	2.55
96 hour: 2.09	1.98	2.21

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Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters
Methods from EPA-821-R-02-012 except *H. azteca*
Test Page 2 of 2

Test Organism: (check one)
- ☐ *Americamysis bahia* Method 2007.0 TA07.03
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☒ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☐ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Beginning: Date: 8.4.09 Time: 11:45
Test Ending: Date: 8.8.09 Time: 1115
Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity µmhos mmhos	Salinity (ppth)
Control	M	0 hr	7.9	24.3	7.8	0.173	—
	—	24 hr	—	—	—	—	
	A	48 hr BR	7.9	24.0	7.2	0.196	—
	M	48 hr AR	8.0	24.2	7.3	0.176	—
		72 hr					
	m	96 hr	8.0	24.0	7.4	0.203	
1.5	BA	0 hr	7.8	24.4	7.8	2.97	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	7.8	24.0	7.1	3.32	—
	M	48 hr AR	7.9	24.4	7.3	3.01	—
		72 hr					
	m	96 hr	7.8	24.1	7.5	3.11	
2.0	M	0 hr	7.9	24.4	7.6	3.90	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	7.9	24.0	7.0	4.65	—
	M	48 hr AR	8.0	24.4	7.2	3.86	—
		72 hr					
	m	96 hr	8.0	24.2	7.6	3.97	
2.5	M	0 hr	7.9	24.2	7.6	4.76	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	7.9	24.0	6.9	5.82	—
	M	48 hr AR	8.0	24.2	7.2	4.75	—
		72 hr					
	m	96 hr	8.0	24.3	7.7	4.79	
3.0	M	0 hr	7.9	24.1	7.7	5.63	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	7.9	24.0	6.9	6.64	—
		48 hr AR					
		72 hr					
		96 hr					
4.0	M	0 hr	7.9	24.0	7.6	7.26	—
	D	24 hr	7.9	24.5	7.6	7.59	—
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Bruce Alan
James Daniels
Jackie Quinn

Measured by:
0 hr: BA
24 hr: BA
48 hr BR: BA
48 hr AR: BA
72 hr: —
96 hr: DD

Measure/record salinity for marine tests

Comments:

Reviewed By: Loretta C Wolf

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Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

Method from EPA-821-R-02-012 except *H. azteca*

Test Organism: (check one)
☐ *Americamysis bahia* Method 2007.0 TA07.03 ☐ *Menidia Beryllina* Method 2006.0 TA07.04 ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01 ☒ *Cyprinella leedsi* Method 2000.0 TA07.02 ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Type: ☐ non-renewal ☒ renewal
Test Page 1 of 2

Diluent/ Batch #: Well / 8.4.09
Toxicant/ Batch#: NaCl / 8.3.09
Organism Batch: 8.4.09 Age: 13 days
Test Beginning: Date: 8.4.09 Time: 1345
Test Ending: Date: 8.8.09 Time: 1100

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	JD
Alkalinity (mg/L as $CaCO_3$):	146	TA06_08	JS
Hardness (mg.L as $CaCO_3$):	137	TA06_09	JS
Total Ammonia (mg/L as N):	<0.017	TA06_17	BA
Conductivity: µmhos (mmhos)	0.276	TA06_25	JD
Salinity (ppth):	—	TA06_25	

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☒ Artemia Lot # 38438	Artemia Batch:
	0 hr: 103.09
	24 hr:
	48 hr: 105.09
	72 hr:

Chamber size: 1000 mL
Test volume: 500 mL per replicate

Concentrations prepared by: JS
Temperature Range °C:(if used)
Test Incubated in: Incubator # 2 Waterbath # ____ Incubator # 2 min. 26.0 max 26.4 mean 26.2
Light Intensity: 50-100 Ft. candles Waterbath # ___ min.____ max.____ mean____
Photoperiod: 16 hours Light / 8 hours dark Room B246 min 25.2 max 25.7 mean 25.5

Feeding: √as needed
☑ Before test
☐ 0 hr
☐ 24 hr
☑ 48 hr
☐ 72 hr

all species 2 hrs prior to test
mysids daily
all species except *H. azteca* 2 hr prior to renewal
H. azteca 0 hr and 48 hr

Concentration µg/L	mg/L (1)	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control		A	B1	10	10	10	10	10	10
		B	B2	10	10	10	10	10	10
			B3						
6		A	B3	10	10	9D	9	9	8D
		B	B4	10	10	10	10	10	10
7		A	B5	10	10	10	10	10	10
		B	B6	10	8D	8	8	8	8
8		A	B7	10	4D	4	4	4	4
		B	B8	10	3D	2D	2	2	2
9		A	B9	10	1D	0D	—	—	—
		B	B10	10	1D	1	1	1	1
10		A	B11	10	0D	—	—		
		B	B12	10	0D	—	—		
Organisms loaded by: JS		Checked by:		JS	JS	JS	JS	JS	JS

H. azteca		
0 hr	Alk	Hrd
Well		
100%		
96 hr	Alk	Hrd
Well		
100%		

Loading Verified by: BA AR = after renewal
m = missing d = dead BR = before renewal hr = hour

Investigators' Signatures
James Daniels
Brad Alsop
Jackie Grim

Reviewer: Loretta C. Wolfe

Comments:

Method: TSK 95% confidence intervals

Statistics: LC50	Lower	Upper
48 hour: 7.69	7.41	7.98
96 hour: 7.70	7.41	7.96

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Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters
Methods from EPA-821-R-02-012 except *H. azteca*
Test Page 2 of 2

Test Organism: (check one)
- ☐ *Americamysis bahia* Method 2007.0 TA07.03
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☒ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Beginning: Date: 8.4.09 Time: 1345
Test Ending: Date: 8.8.09 Time: 1100
Test Type: ☐ non-renewal ☒ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity (ppth)
Control	A	0 hr	7.9	24.4	7.8	0.276	—
	B	24 hr	8.1	24.6	7.0	0.294	—
	A	48 hr BR	8.2	24.8	7.0	0.290	—
	A	48 hr AR	8.1	24.0	7.1	0.283	—
	B	72 hr	8.1	24.7	6.4	0.287	
	A	96 hr	8.0	24.1	6.6	0.291	
6	A	0 hr	7.8	24.3	7.9	11.6	—
	B	24 hr	8.0	24.6	6.8	11.5	—
	A	48 hr BR	8.0	24.8	6.8	11.6	—
	A	48 hr AR	8.0	24.1	6.9	11.5	—
	B	72 hr	8.0	24.7	6.3	11.5	
	A	96 hr	7.9	24.2	6.6	11.7	
7	A	0 hr	7.9	24.3	7.8	12.9	—
	B	24 hr	8.1	24.5	6.6	12.8	—
	A	48 hr BR	8.1	24.6	6.8	12.9	—
	A	48 hr AR	8.0	24.1	6.9	13.3	—
	B	72 hr	8.0	24.8	6.5	134	
	A	96 hr	7.9	24.1	6.8	136	
8	A	0 hr	7.9	24.2	7.9	15.1	—
	B	24 hr	8.0	24.4	6.5	15.0	—
	A	48 hr BR	8.1	24.6	6.7	15.2	—
	A	48 hr AR	8.0	24.1	7.0	14.9	—
	B	72 hr	8.0	24.7	6.7	14.9	
	A	96 hr	7.9	24.0	6.9	15.1	
9	A	0 hr	7.9	24.1	8.0	16.2	—
	B	24 hr	8.0	24.4	6.4	16.0	—
	A	48 hr BR	8.2	24.6	6.7	16.1	—
	B	48 hr AR	8.0	24.1	7.0	16.7	—
	B	72 hr	8.1	24.7	6.7	16.9	
	B	96 hr		24.0	7.0	17.0	
10	A	0 hr	7.9	24.1	8.1	18.3	—
	B	24 hr	8.0	24.5	6.3	18.2	—
	A	48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Jana Davis
Brad Leslie
Jackie Swim

Reviewed By: Loretta C. Wolfe

Measured by:
0 hr: JD
24 hr: JD
48 hr BR: JD
48 hr AR: JD
72 hr: JD
96 hr: JD

Measure/record salinity for marine tests

Comments:

Pg 16

Appendix C. (continued)

***Ceriodaphnia dubia* Acute Standard Reference Toxicant Test**

DATE: 8-4-09 DURATION: 96 h TOXICANT: NaCl
SPECIES: *Ceriodaphnia dubia*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
1.50	20	0
2.00	20	6
2.50	20	19
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: **2.09**
95% LOWER CONFIDENCE: 1.98
95% UPPER CONFIDENCE: 2.21

***Cyprinella leedsi* Acute Standard Reference Toxicant Test**

DATE: 8-4-09 DURATION: 96 h TOXICANT: NaCl
SPECIES: *Cyprinella leedsi*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
6.00	20	2
7.00	20	2
8.00	20	14
9.00	20	19
10.00	20	20

SPEARMAN-KARBER TRIM: 10.00%

SPEARMAN-KARBER ESTIMATES: LC50: **7.70**
95% LOWER CONFIDENCE: 7.44
95% UPPER CONFIDENCE: 7.96

Appendix D. Test Organism Receipts

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 8/3/09

Shipped to: FDEP

P.O. No:

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia	150	4 DAYS	MS090730	25°C	7.9 s.u.	20‰
Menidia beryllina	150	12 DAYS	SS090722	25°C	7.9 s.u	20‰
						Hardness
Cyprinella leedsi	150	12 DAYS	CL090722	25°C	7.8 s.u	80mg/L
Pimephales promelas	150	8 DAYS	FM090726	25°C	7.8 s.u	80mg/L

Packed by:

Shipped Via: FedEx

Notes:

Thank you for your order.

4569 Samuel Street · Sarasota, FL 34233 · Tel: 941-925-3594 · Fax: 941-922-3874 · Web: www.biologylab.com

Appendix D. (continued)



NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 8/17/09

Shipped to: FDEP

P.O. No:_____

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia						
Menidia beryllina						
						Hardness
Cyprinella leedsi	200	10 DAYS	CL090807	25°C	7.8 s.u.	80 mg/L
Pimephales promelas						

Packed by: [signature]

Shipped Via: FedEx

Notes:_____

Thank you for your order.

4560 Samuel Street · Sarasota, FL 34233 · Tel: 941-925-3594 · Fax: 941-922-3874 · Web: www.biologylab.com

Appendix E. Chemical Analyses performed on the effluent from the City of Sarasota AWWTP Outfall D-001, sampled on July 13, 2009.

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/17/2009 10:30	Effluent	AGP/LN	Algal Growth Potential	3	U	mg DryWt/L	3	3
8/17/2009 10:30	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.88	I	ug/L	0.55	1.7
8/17/2009 10:30	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
8/17/2009 10:30	Effluent	Overflow	Fecal Coliforms-Membrane Filter	1	U	#/100 mL		
8/17/2009 10:30	Effluent	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100	L	LC50		
8/17/2009 10:30	Effluent	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100	L	LC50		
8/17/2009 10:30	Effluent	Nutrients	O-Phosphate-P	0.062	J	mg P/L	0.004	0.01
8/17/2009 10:30	Effluent	Nutrients	TSS	4	U	mg/L	4	16
8/17/2009 10:30	Effluent	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
8/17/2009 10:30	Effluent	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
8/17/2009 10:30	Effluent	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
8/17/2009 10:30	Effluent	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
8/17/2009 10:30	Effluent	Pesticides	Naled	0.8	UJ	ug/L	0.8	3.2
8/17/2009 10:30	Effluent	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
8/17/2009 10:30	Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
8/17/2009 10:30	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
8/17/2009 10:30	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
8/17/2009 10:30	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
8/17/2009 10:30	Effluent	Pesticides	Delta-BHC	0.01	U	ug/L	0.01	0.04
8/17/2009 10:30	Effluent	Pesticides	Methoxychlor	0.05	UJ	ug/L	0.05	0.2
8/17/2009 10:30	Effluent	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
8/17/2009 10:30	Effluent	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08
8/17/2009 10:30	Effluent	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.08
8/17/2009 10:30	Effluent	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8
8/17/2009 10:30	Effluent	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
8/17/2009 10:30	Effluent	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
8/17/2009 10:30	Effluent	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
8/17/2009 10:30	Effluent	Pesticides	DDT-p,p'	0.03	U	ug/L	0.03	0.12
8/17/2009 10:30	Effluent	Pesticides	Toxaphene	0.75	U	ug/L	0.75	3
8/17/2009 10:30	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
8/17/2009 10:30	Effluent	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
8/17/2009 10:30	Effluent	Pesticides	Mevinphos	0.2	UJ	ug/L	0.2	0.8
8/17/2009 10:30	Effluent	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2

Appendix E. (continued)

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/17/2009 10:30	Effluent	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08
8/17/2009 10:30	Effluent	Pesticides	Endrin	0.05	U	ug/L	0.05	0.2
8/17/2009 10:30	Effluent	Pesticides	Bromacil	0.2	UJ	ug/L	0.2	0.8
8/17/2009 10:30	Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
8/17/2009 10:30	Effluent	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
8/17/2009 10:30	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
8/17/2009 10:30	Effluent	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
8/17/2009 10:30	Effluent	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08
8/17/2009 10:30	Effluent	Pesticides	Gamma-BHC	0.01	U	ug/L	0.01	0.04
8/17/2009 10:30	Effluent	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
8/17/2009 10:30	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
8/17/2009 10:30	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
8/17/2009 10:30	Effluent	Pesticides	Aldrin	0.01	U	ug/L	0.01	0.04
8/17/2009 10:30	Effluent	Pesticides	Beta-BHC	0.01	U	ug/L	0.01	0.04
8/17/2009 10:30	Effluent	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
8/17/2009 10:30	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
8/17/2009 10:30	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
8/17/2009 10:30	Effluent	Pesticides	Alpha-BHC	0.01	U	ug/L	0.01	0.04
8/17/2009 10:30	Effluent	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
8/17/2009 10:30	Effluent	Pesticides	Heptachlor	0.01	U	ug/L	0.01	0.04
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Isophorone	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	UJ	ug/L	15	59
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Dimethyl phthalate	9.8	U	ug/L	9.8	39
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Naphthalene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
8/17/2009 10:30	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	UJ	ug/L	39	160
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	20
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	7.8
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Benzidine	98	U	ug/L	98	390

Appendix E. (continued)

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Anthracene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.8	U	ug/L	9.8	39
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Fluoranthene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Phenanthrene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Dibromochloromethane	26		ug/L	0.2	1
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	7.8
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.98	UJ	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Fluorene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Phenol	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Bromodichloromethane	12		ug/L	0.2	1
8/17/2009 10:30	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Acenaphthylene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	UJ	ug/L	2.9	12
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	2	UJ	ug/L	2	7.8
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Pyrene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	59
8/17/2009 10:30	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Acenaphthene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.98	U	ug/L	0.98	3.9

Appendix E. (continued)

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Chrysene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	20
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
8/17/2009 10:30	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	7.8
8/17/2009 10:30	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
8/17/2009 10:30	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.98	U	ug/L	0.98	3.9
8/17/2009 10:30	Effluent	Field Parameter	Temperature	30.71		C		
8/17/2009 10:30	Effluent	Field Parameter	pH	7.99				
8/17/2009 10:30	Effluent	Field Parameter	Dissolved Oxygen	7.3		mg/L		
8/17/2009 10:30	Effluent	Field Parameter	Specific Conductance	2132		umhos/cm		
8/16/2009 7:30	Effluent Comp	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	12	JVQ	mg/L	0.2	2
8/16/2009 7:30	Effluent Comp	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
8/16/2009 7:30	Effluent Comp	Metals	Magnesium	31.8		mg/L	0.04	0.16
8/16/2009 7:30	Effluent Comp	Metals	Zinc	16	I	ug/L	5	20
8/16/2009 7:30	Effluent Comp	Metals	Lead	0.2	U	ug/L	0.2	0.8
8/16/2009 7:30	Effluent Comp	Metals	Nickel	2.09		ug/L	0.25	1
8/16/2009 7:30	Effluent Comp	Metals	Copper	1.43		ug/L	0.5	0.5
8/16/2009 7:30	Effluent Comp	Metals	Chromium	0.45	I	ug/L	0.3	1.2
8/16/2009 7:30	Effluent Comp	Metals	Silver	0.025	U	ug/L	0.025	0.1
8/16/2009 7:30	Effluent Comp	Metals	Aluminum	140	I	ug/L	60	240
8/16/2009 7:30	Effluent Comp	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
8/16/2009 7:30	Effluent Comp	Metals	Iron	37	I	ug/L	30	120
8/16/2009 7:30	Effluent Comp	Metals	Antimony	0.4	I	ug/L	0.25	1
8/16/2009 7:30	Effluent Comp	Metals	Calcium	57		mg/L	0.075	0.3
8/16/2009 7:30	Effluent Comp	Metals	Selenium	0.2	U	ug/L	0.2	0.8
8/16/2009 7:30	Effluent Comp	Metals	Arsenic	0.77	I	ug/L	0.25	1
8/16/2009 7:30	Effluent Comp	Nutrients	Total-P	0.1	A	mg P/L	0.004	0.01
8/17/2009 7:30	Effluent Comp	Nutrients	TSS	4	U	mg/L	4	16
8/16/2009 7:30	Effluent Comp	Nutrients	Ammonia-N	0.029	J	mg N/L	0.01	0.02
8/16/2009 7:30	Effluent Comp	Nutrients	NO2NO3-N	2.9		mg N/L	0.08	0.2
8/16/2009 7:30	Effluent Comp	Nutrients	Kjeldahl Nitrogen	0.65		mg N/L	0.08	0.2
8/17/2009 10:55	Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
8/17/2009 10:55	Blank	Pesticides	Endrin Aldehyde	0.019	U	ug/L	0.019	0.076

Appendix E. (continued)

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/17/2009 10:55	Blank	Pesticides	Naled	0.76	UJ	ug/L	0.76	3
8/17/2009 10:55	Blank	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
8/17/2009 10:55	Blank	Pesticides	Diazinon	0.047	U	ug/L	0.047	0.19
8/17/2009 10:55	Blank	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
8/17/2009 10:55	Blank	Pesticides	Parathion Methyl	0.095	U	ug/L	0.095	0.38
8/17/2009 10:55	Blank	Pesticides	Aldrin	0.0095	U	ug/L	0.0095	0.038
8/17/2009 10:55	Blank	Pesticides	Toxaphene	0.71	U	ug/L	0.71	2.8
8/17/2009 10:55	Blank	Pesticides	Ethion	0.047	U	ug/L	0.047	0.19
8/17/2009 10:55	Blank	Pesticides	Chlordane	0.19	U	ug/L	0.19	0.76
8/17/2009 10:55	Blank	Pesticides	Delta-BHC	0.0095	U	ug/L	0.0095	0.038
8/17/2009 10:55	Blank	Pesticides	Dieldrin	0.019	U	ug/L	0.019	0.076
8/17/2009 10:55	Blank	Pesticides	Metolachlor	0.47	U	ug/L	0.47	1.9
8/17/2009 10:55	Blank	Pesticides	Mevinphos	0.19	UJ	ug/L	0.19	0.76
8/17/2009 10:55	Blank	Pesticides	Beta-BHC	0.0095	U	ug/L	0.0095	0.038
8/17/2009 10:55	Blank	Pesticides	Endosulfan I	0.019	U	ug/L	0.019	0.076
8/17/2009 10:55	Blank	Pesticides	Endosulfan Sulfate	0.019	U	ug/L	0.019	0.076
8/17/2009 10:55	Blank	Pesticides	Heptachlor Epoxide	0.019	U	ug/L	0.019	0.076
8/17/2009 10:55	Blank	Pesticides	Bromacil	0.19	UJ	ug/L	0.19	0.76
8/17/2009 10:55	Blank	Pesticides	Metribuzin	0.095	U	ug/L	0.095	0.38
8/17/2009 10:55	Blank	Pesticides	Alpha-BHC	0.0095	U	ug/L	0.0095	0.038
8/17/2009 10:55	Blank	Pesticides	DDD-p,p'	0.019	U	ug/L	0.019	0.076
8/17/2009 10:55	Blank	Pesticides	Methoxychlor	0.047	UJ	ug/L	0.047	0.19
8/17/2009 10:55	Blank	Pesticides	Atrazine	0.047	U	ug/L	0.047	0.19
8/17/2009 10:55	Blank	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L	0.095	0.38
8/17/2009 10:55	Blank	Pesticides	Ethoprop	0.095	U	ug/L	0.095	0.38
8/17/2009 10:55	Blank	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
8/17/2009 10:55	Blank	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
8/17/2009 10:55	Blank	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56
8/17/2009 10:55	Blank	Pesticides	DDE-p,p'	0.019	U	ug/L	0.019	0.076
8/17/2009 10:55	Blank	Pesticides	Endrin	0.047	U	ug/L	0.047	0.19
8/17/2009 10:55	Blank	Pesticides	Gamma-BHC	0.0095	U	ug/L	0.0095	0.038
8/17/2009 10:55	Blank	Pesticides	Chlorpyrifos Ethyl	0.047	U	ug/L	0.047	0.19
8/17/2009 10:55	Blank	Pesticides	Phorate	0.047	U	ug/L	0.047	0.19
8/17/2009 10:55	Blank	Pesticides	Simazine	0.047	U	ug/L	0.047	0.19

Appendix E. (continued)

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/17/2009 10:55	Blank	Pesticides	DDT-p,p'	0.028	U	ug/L	0.028	0.11
8/17/2009 10:55	Blank	Pesticides	Heptachlor	0.0095	U	ug/L	0.0095	0.038
8/17/2009 10:55	Blank	Pesticides	Ametryn	0.047	U	ug/L	0.047	0.19
8/17/2009 10:55	Blank	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
8/17/2009 10:55	Blank	Pesticides	Fonofos	0.095	U	ug/L	0.095	0.38
8/17/2009 10:55	Blank	Pesticides	Hexazinone	0.095	U	ug/L	0.095	0.38
8/17/2009 10:55	Blank	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
8/17/2009 10:55	Blank	Pesticides	Endosulfan II	0.019	U	ug/L	0.019	0.076
8/17/2009 10:55	Blank	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
8/17/2009 10:55	Blank	Pesticides	Malathion	0.14	U	ug/L	0.14	0.56
8/17/2009 10:55	Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.5	U	ug/L	9.5	38
8/17/2009 10:55	Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	UJ	ug/L	2.9	11
8/17/2009 10:55	Blank	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
8/17/2009 10:55	Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
8/17/2009 10:55	Blank	Priority Organic Pollutants	Acenaphthene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	11
8/17/2009 10:55	Blank	Priority Organic Pollutants	Dibromochloromethane	0.2	U	ug/L	0.2	1
8/17/2009 10:55	Blank	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	57
8/17/2009 10:55	Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Diethyl phthalate	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
8/17/2009 10:55	Blank	Priority Organic Pollutants	Pyrene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
8/17/2009 10:55	Blank	Priority Organic Pollutants	Benzidine	95	U	ug/L	95	380
8/17/2009 10:55	Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	UJ	ug/L	14	57
8/17/2009 10:55	Blank	Priority Organic Pollutants	Chrysene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Isophorone	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
8/17/2009 10:55	Blank	Priority Organic Pollutants	Phenol	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.95	U	ug/L	0.95	3.8

Appendix E. (continued)

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/17/2009 10:55	Blank	Priority Organic Pollutants	Acenaphthylene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	UJ	ug/L	1.9	7.6
8/17/2009 10:55	Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
8/17/2009 10:55	Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Dimethyl phthalate	9.5	U	ug/L	9.5	38
8/17/2009 10:55	Blank	Priority Organic Pollutants	Hexachlorobenzene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
8/17/2009 10:55	Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	2-Chlorophenol	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	2-Nitrophenol	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	UJ	ug/L	38	150
8/17/2009 10:55	Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Fluoranthene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Fluorene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
8/17/2009 10:55	Blank	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11
8/17/2009 10:55	Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Anthracene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
8/17/2009 10:55	Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.95	UJ	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
8/17/2009 10:55	Blank	Priority Organic Pollutants	Naphthalene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Phenanthrene	0.95	U	ug/L	0.95	3.8
8/17/2009 10:55	Blank	Priority Organic Pollutants	Bromodichloromethane	0.2	U	ug/L	0.2	1
8/17/2009 10:55	Field Blank	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.2	UJ	mg/L	0.2	2
8/17/2009 10:55	Field Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
8/17/2009 10:55	Field Blank	Metals	Antimony	0.25	U	ug/L	0.25	1

Appendix E. (continued)

Date	Field ID	Analysis	Component	Results	Remark	Units	MDL	PQL
8/17/2009 10:55	Field Blank	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
8/17/2009 10:55	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
8/17/2009 10:55	Field Blank	Metals	Iron	30	U	ug/L	30	120
8/17/2009 10:55	Field Blank	Metals	Copper	0.5	U	ug/L	0.5	0.5
8/17/2009 10:55	Field Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
8/17/2009 10:55	Field Blank	Metals	Zinc	5	U	ug/L	5	20
8/17/2009 10:55	Field Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
8/17/2009 10:55	Field Blank	Metals	Aluminum	60	U	ug/L	60	240
8/17/2009 10:55	Field Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
8/17/2009 10:55	Field Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
8/17/2009 10:55	Field Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
8/17/2009 10:55	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
8/17/2009 10:55	Field Blank	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
8/17/2009 10:55	Field Blank	Nutrients	NO2NO3-N	0.009	I	mg N/L	0.004	0.01
8/17/2009 10:55	Field Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
8/17/2009 10:55	Field Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
8/17/2009 10:55	Field Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
8/17/2009 7:30	Trip Blank	Priority Organic Pollutants	Dibromochloromethane	0.2	U	ug/L	0.2	1
8/17/2009 7:30	Trip Blank	Priority Organic Pollutants	Bromodichloromethane	0.2	U	ug/L	0.2	1

Appendix F. Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Jason Cohen Jason.Cohen@dep.state.fl.us	**Contact Number:** 813-632-7600 x429
Facility Name (as it appears on permit): City of Sarasota AWWTP	**Former Names:**
NPDES Permit Number: **FL0040771**	**Permit Expiration Date:** **5/17/2010**
Physical Address: **1850-12th Street Sarasota, Fl 34236**	
District: Southwest	**County:** **Sarasota**
Function of Facility: An existing 10.2 MGD annual average daily flow (AADF), 13.0 MGD maximum monthly average daily flow (MMADF) Type I Modified Bardenpho advanced domestic wastewater treatment plant (AWWTP) consisting of the following: headworks of two mechanically cleaned bar screens and one vortex degritter, one 3.0 MG equalization basin, two 450,000 gallon fermentation tanks, two 500,000 gallon first anoxic basins, two 2.145 MG nitrification basins, two second anoxic basins of 500,000 gallons and 600,000 gallons, one 250,000 gallon re-aeration basin, four clarifiers of 3.28 MG total volume and 29,000 square feet total surface area with a combined weir length of 1,200 ft, one 200,000 gallon flash mix flocculator, five automatic backwash traveling bridge filters of 1,440 square feet each, and a 540,000 gallon dual basin chlorine contact chamber. After construction, the plant will utilize sodium hypochlorite for disinfection and sodium bisulfite for de-chlorination. The plant currently uses chlorine gas. The residuals management stream consists of: two 480 square feet dissolved air flotation thickeners, a 500,000 gallon aerated sludge holding basin, two 2.2 meter belt filter presses, and a 6.25 dry ton per day in-vessel composting system for producing Class AA residuals. Alum is on-site for phosphorous control. **MODIFICATION :** The two belt filter presses will be replaced with high speed centrifuges.	
Facility Type: **Major**	**Permitted Capacity (MGD):** **10.2 MGD (AADF)** **13.0 MGD (MMADF)**
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): **4/08 – 3/09** **1.52 MGD**	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☒**Continuous** ☐ **Intermittent** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify**	

Appendix F. (continued)

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):

Monitoring Location Site Number	Description of Monitoring Location
EFA-01	After disinfection and prior to dechlorination/post aeration/reuse systems.
EFB-01	Turbidity monitoring / TSS sample point after filtration and prior to disinfection.
EFD-01	At effluent flow meter vault and sampling point prior to D-001.
FLW-04	Flow to D-001

Description of Permitted Outfall(s):

Surface Water Discharge: An existing 10.2 MGD annual average daily flow (AADF) (13.0 MGD maximum month ADF) permitted discharge to Whitaker Bayou, a Class III water of the state, then to Sarasota Bay, an Outstanding Florida Water. The point of Discharge (D-001), a 24-inch concrete pipe without diffuser, is approximately 5 feet from shore and discharges at a depth of 2 feet below the water surface. The point of discharge is located approximately at latitude 27 ° 21' 15" N, longitude 82 ° 32' 50" W. Included with this renewal permit, the 24-inch pipe that crosses US 41 and discharges into Whitaker Bayou (approximately 600 linear feet) is to be replaced with 36-inch pipe.

REUSE:

Land Application: An existing 15.5 MGD annual average daily flow (AADF) permitted capacity slow-rate public access system (R-001) consisting of an existing 13.5 MGD annual average daily flow (AADF) permitted capacity slow-rate public access system with a general service area depicted on the Agricultural/Golf Course and Master Urban Reuse System map published by the City of Sarasota dated July 2004 and an existing 2.0 MGD annual average daily flow (AADF) permitted capacity slow-rate public access system (R-002) discharge to the Sarasota County North Master Reuse System (FLA177008).

Reclaimed water is discharged into stormwater storage lake system D-002, Bobby Jones Golf Course, which intermittently overflows to the following: Canal B, Phillipi Creek, and Sarasota Bay.

Reclaimed water is discharged into stormwater storage lake system D-003, Meadows Golf Course, which intermittently overflows to the following: Canal B, Phillipi Creek, and Sarasota Bay.

Appendix F. (continued)

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):

An existing 10.2 MGD annual average daily flow (AADF), 13.0 MGD maximum monthly average daily flow (MMADF) Type I Modified Bardenpho advanced domestic wastewater treatment plant (AWWTP) consisting of the following: headworks of two mechanically cleaned bar screens and one vortex degritter, one 3.0 MG equalization basin, two 450,000 gallon fermentation tanks, two 500,000 gallon first anoxic basins, two 2.145 MG nitrification basins, two second anoxic basins of 500,000 gallons and 600,000 gallons, one 250,000 gallon re-aeration basin, four clarifiers of 3.28 MG total volume and 29,000 square feet total surface area with a combined weir length of 1,200 ft, one 200,000 gallon flash mix flocculator, five automatic backwash traveling bridge filters of 1,440 square feet each, and a 540,000 gallon dual basin chlorine contact chamber. After construction, the plant will utilize sodium hypochlorite for disinfection and sodium bisulfite for de-chlorination. The plant currently uses chlorine gas.

The residuals management stream consists of: two 480 square feet dissolved air flotation thickeners, a 500,000 gallon aerated sludge holding basin, two 2.2 meter belt filter presses, and a 6.25 dry ton per day in-vessel composting system for producing Class AA residuals.

Alum is on-site for phosphorous control.

MODIFICATION : The two belt filter presses will be replaced with high speed centrifuges.

PART I: Continued

List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under
(Leave cell blank if not applicable)

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow, to D-001	MGD	Maximum	10.2	13.0	-	-	Continuous	Recording flow meters and totalizers	FLW-04	See Cond.I.A.4
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	-	2.0 Q<3.0 CFS	-	-	Daily	24-hour flow proportioned composite	EFD-01	See Cond.I.A.7
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	-	3.0 Q>3.0 CFS	-	-	Daily	24-hour flow proportioned composite	EFD-01	See Cond.I.A.7
Solids, Total Suspended	MG/L	Maximum	5.0	6.25	7.5	10.0	Daily	24-hour flow proportioned composite	EFD-01	
Nitrogen, Total	MG/L	Maximum	3.0	3.75	4.5	6.0	Daily	24-hour flow proportioned composite	EFD-01	
Phosphorus, Total (as P)	MG/L	Maximum	1.0	1.25	1.5	2.0	Daily	24-hour flow proportioned composite	EFD-01	
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	1.0	Continuous	Meter	EFA-01	See Cond.I.A.3, 6
Nitrogen, Total (as N)	Tons/Yr	Maximum	47	-	-	-	Monthly	Calculation	EFA-01	See Cond.I.A.8
Solids, Total Suspended	MG/L	Maximum	-	-	-	5.0	Daily	Grab	EFB-01	
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	Daily	Grab	EFD-01	
pH	SU	Range	-	-	-	6.5 to 8.5	Continuous	Meter	EFD-01	See Cond.I.A.3
Oxygen, Dissolved (DO)	MG/L	Minimum	-	-	-	6.0	Daily	Grab	EFD-01	
Silver, Total Recoverable	UG/L	Maximum	-	-	-	2.3	Quarterly	24-hour flow proportioned composite	EFD-01	

Appendix F. (continued)

Parameter	Units	Max/Min	Effluent Limitations				Monitoring Requirements			
			Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Copper, Total Recoverable	UG/L	Maximum	-	-	-	3.7	Monthly	24-hour flow proportioned composite	EFD-01	
Coliform, Fecal, % less than detection	%	Minimum	See Permit Condition I.A.5.				5 Days/Week	Grab	EFD-01	
Coliform, Fecal	#/100ML	Maximum	See Permit Condition I.A.5.				5 Days/Week	Grab	EFD-01	
Chronic Whole Effluent Toxicity	PERCENT	Minimum	-	-	-	100	Bimonthly	24-hour flow proportioned composite	EFD-01	See Cond. I.A.9
Dichlorobromomethane	UG/L	Maximum	22.0	-	-	-	Monthly	Grab	EFD-01	See AO-095-SW
Dibromochloromethane	UG/L	Maximum	34.0	-	-	-	Monthly	Grab	EFD-01	See AO-095-SW
Beryllium, Total Recoverable	UG/L	Maximum	0.13				Monthly	24-hour flow proportioned composite	EFD-01	
Mercury, Total Recoverable	UG/L	Maximum				0.025	Monthly	24-hour flow proportioned composite	EFD-01	See AO-095-SW
Nickel, Total Recoverable	UG/L	Maximum				8.3	Monthly	24-hour flow proportioned composite	EFD-01	See AO-095-SW

Appendix F. (continued)

PART I: Continued	
Receiving Waters: Whitaker Bayou then the Sarasota Bay	**Classification (indicate whether fresh or marine):** **Class III Marine**

Appendix F. (continued)

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):

9. Chronic Whole Effluent Toxicity Testing.
The permittee shall comply with the following whole effluent toxicity testing requirements and initiate the series of tests described below within 60 days of permit issuance, unless otherwise directed by the Department in writing, to evaluate chronic whole effluent toxicity of the discharge from outfall D-001 to Whitaker Bayou.

a. Effluent Limitation

1. A No Observed Effect Concentration (NOEC) of greater than or equal to 100% effluent in any routine test or any additional test shall constitute compliance with these permit conditions and Rule 62-302.530(62), F.A.C.
2. A NOEC of less than 100% effluent in any routine test or additional test shall constitute non-compliance with these permit conditions and Rule 62-302.530(62), F.A.C. The permittee shall notify the Department via telephone or e-mail within 24 hours of notification that a routine or additional test failed.

b. Monitoring Frequency
The "routine" toxicity tests specified shall be conducted *once every two months.*

c. Routine Test Requirements

1. The permittee shall conduct a daphnid, Ceriodaphnia dubia, Survival and Reproduction Test and a fathead minnow, Pimephales promelas, Larval Survival and Growth Test, concurrently.
2. All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th ed., EPA-821-R-02-013, or the most current edition. Any deviation of the toxicity procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use.
3. The control water and dilution water used shall be moderately hard water as described in EPA-821-R-02-013, Section 7, or the most current edition.
4. All routine tests shall be conducted using a control (0% effluent) and a minimum of five test concentrations: 100%, 50%, 25%, 12.5%, and 6.25% final effluent.

d. Sampling Requirements

1. For each routine test or additional test required, a total of three 24-hour, flow-proportioned composite samples of final effluent shall be collected and used per the sampling protocol discussed in EPA-821-R-02-013, Section 8, or the most current edition. The first sample shall be used to initiate the test. The remaining two composite samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test. If the duration of the discharge is less than 24-hours, the duration of discharge shall be documented on the chain of custody.

e. Additional Testing Requirements, if required

1. If chronic toxicity (an NOEC of less than 100% effluent) is found in any routine test, the permittee shall conduct two valid additional definitive tests on each species indicating an NOEC of less than 100% effluent.
2. Each valid additional test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5% and 6.25% effluent. The dilution series may be modified in the second test to more accurately bracket the toxicity, such that at least two dilutions above (not to exceed 100% effluent) and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be statistically analyzed according to the Appendices in EPA-821-R-02-013, or the most current edition.
3. The first valid additional test shall be initiated within two weeks of the end of the failed routine test. The second valid additional test shall be conducted one week thereafter. The additional tests will be used to evaluate the persistence of the observed toxicity.

f. Quality Assurance Requirements

1. A standard reference toxicant quality assurance chronic toxicity test (SRT-QA) shall be conducted with each species used in the toxicity tests, either concurrently or no more than 30 days before the date of each routine or additional test conducted. The SRT-QA data shall be submitted with each companion routine or additional test required.
2. A test, routine or additional, will be considered valid only if control mortality does not exceed 20% for either test species and all test acceptability criteria are met as described in 3 and 6.
The results of any invalid test shall be submitted to the Department in conjunction with the results of the repeat test.
3. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (C. dubia) and Section 11.12 (P. promelas) or the most current edition.
4. If the mortality in the control (0% effluent) exceeds 20% for either species in any test, the test for that species (including the control) shall be invalidated and the test repeated.
5. If, in any test, 100% mortality occurs in any test concentration prior to the end of the seven days, and control mortality is less than 20% at that time, that test (including the control) shall be terminated with the conclusion that the test constitutes non-compliance with these permit conditions.
6. Routine and additional tests shall be evaluated for acceptability based on the observed dose-response relationship and the percent minimum significant difference (PMSD) as required by EPA-821-R-02-013, Sections 10.2.6 and 10.2.8, respectively.

g. Reporting Requirements

1. Results from all tests shall be reported and submitted on the Discharge Monitoring Report (DMR) in the following manner:

- Routine Test Results: If the NOEC of a test species is less than 100% effluent, "<100%" should be entered on the DMR for that species. If the NOEC of a test species is greater than or equal to 100% effluent, ">100%" should be entered.
- Additional Test Results: Report the % effluent determined to be the NOEC endpoint of the test.

2. A toxicity laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review (or the most current edition) and mailed to the Department at the address in 3d. within 30 days of the completion of the test.
3. For additional tests, a single toxicity report shall be prepared according to EPA-821-R-02-013, Section 10, or the most current edition, and mailed within 45 days of completion of the second additional, valid test. If the routine test and any additional test fail to meet the criteria listed in "Effluent Limitations", the permittee shall submit a plan to the Department within 60 days of completion of the additional test report as to the cause of the chronic toxicity and a plan to remedy the observed chronic toxicity.

4. All toxicity reports shall be submitted to:
Department of Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, FL 33619-1352
Telephone No.: (813) 744-6100

Appendix F. (continued)

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):			
Facility Mixing Zone Details (if applicable):			
List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:			
Date	Parameter and Units	Limit	Result
Describe previous FYI and WQBEL study:			
Describe previous or current Enforcement Actions (including WLs):			
Describe any violations or problems noted in previous inspection:			
Discuss whether DMR trends within previous five years are improving or declining:			
Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):			

Appendix G. Bioassay Instruments

FDEP Biology Laboratory - Bioassay Instrument Identification

Test Dates: August 18 - 22, 2009

Test ID: City of Sarasota WWTP SRT Dates: August 4 - 8, 2009

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	√
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H^+	√
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity	SM 2510 B	√
			Salinity	SM 2520 B	√
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	√
Thermometer (DO probe)	YSI 5750 SN 05J1720	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	√
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	√
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	√
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	√
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	

SM-2530B modified to allow use electronic and non-mercury filled thermometers.
Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

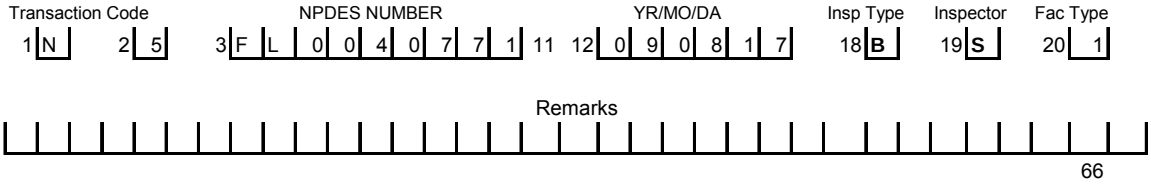
Comments:
Entered by M. Faircloth 11/12/09

V 1.4 8/21/08 BA

Appendix H. EPA End Sheet

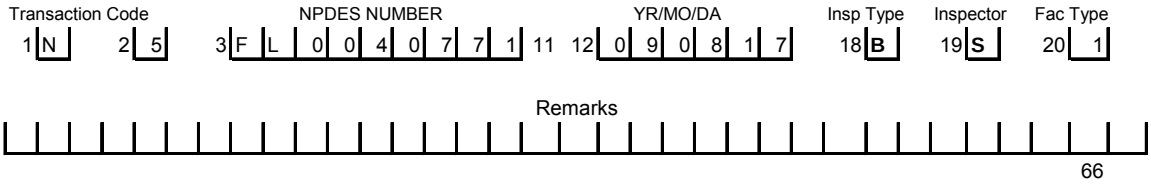
The Bioassay of the City of Sarasota AWWTP effluent sampled on August 17, 2009. NPDES #FL0040771.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)



The Priority Pollutants Analysis of the City of Sarasota AWWTP effluent sampled on August 17, 2009. NPDES #FL0040771.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)



Biological Analyses of the City of Sarasota AWWTP effluent sampled on August 17, 2009. NPDES #FL0040771.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

